ABSTRACT OF THE DISCLOSURE

A fuel cell power generating apparatus (1) using a fuel cell (10) having a cathode (11) and an anode (13) disposed on opposite sides of an electrolyte membrane (12) has an air supply passage (31) through which atmospheric air is supplied to the cathode. A fuel gas supply passage (22) supplies a fuel gas such as hydrogen gas is supplied to the anode. A water spray nozzle (41) ejects liquid water onto the surface of the cathode and the sprayed water takes heat from the air around the cathode as latent heat of evaporation, which is effective to prevent dehydration of the electrolyte membrane, as well as to cool the cathode which would otherwise become overheated when the fuel cell operates continuously over a long period of time. When starting operation of the apparatus, the nozzle is made operative to eject water onto the cathode before the fuel gas is first supplied to the anode to prevent the supplied fuel gas from reacting with oxygen in air which might remain around the cathode.